UNITED STATES PATENT AND TRADEMARK OFFICE

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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER
ROSS, JOHN M

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   Claims 1-16 are amended.

Claims 17-20 are new.

Claims 1-20 are rejected.

Response to Amendment

2.   Applicant's amendment filed on 24 May 2004 (Paper No. 7) in response to the office

action mailed on 23 December 2003 necessitates new ground(s) of rejection as presented below

in this Office action.

Claim Objections

3.   Claims 1-20 are objected to because of the following informalities:

The phrase "said integrated storage management" in lines 6, 13 and 15 of claim 1 lacks

proper antecedent basis in the claims. It is suggested that this phrase be replaced by the phrase

"said integrated storage management server". The claim(s) will be interpreted in light of this

suggestion.

The phrases "making file writing" (Claim 1, line 19) and "make file writing" (Claim 1, line 21) are awkward and grammatically incorrect. It is suggested that these phrases be replaced by the phrases "writing a file" and "writes a file", respectively. The claim(s) will be interpreted in light of this suggestion.

The phrases "making file deleting" (Claim 3, line 14) and "make file deleting" (Claim 3, line 15) are awkward and grammatically incorrect. It is suggested that these phrases be replaced by the phrases "deleting a file" and "deletes a file", respectively. The claim(s) will be interpreted in light of this suggestion.

Claims 4, 6, 9, 11, 12 and 14 contain similar deficiencies as those enumerated above with respect to claims 1 and 3, and should be corrected accordingly.

All dependent claims are objected to as having the same deficiencies as the claims they depend from.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 3, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Walker (Bruce Walker et al, "The LOCUS Distributed Operating System", 1983).

Walker discloses a distributed system comprising a plurality of computers connected by a network, where the combined resources of all the computers appear as a single computer to a user (§ 1, paragraph 1). The storage resources of the computers are managed by a distributed file system (§ 2.1, paragraph 1).

Therefore as in claim 1, Walker is understood to disclose an integrated storage management system in which access computers having an auxiliary storage are coupled to each other via a network.

Further as in claim 1, Walker discloses:

a plurality of access computers (§ 1, paragraph 1);

an integrated storage management server (§ 2.3.1, paragraph 1, item c; Fig. 2, "CSS");

wherein the integrated storage management server has policy information which indicates a write policy that a user who uses an access computer as a write destination requires for an access computer as a write source when the access computer as the write source writes a file in the auxiliary storage managed by another access computer (§ 2.3.1, paragraph 1, item c; § 2.3.1, paragraph 2),

wherein the access computer as the write source designates file information and inquires

an access computer as the write destination to be written of the integrated storage management

server (§ 2.3.1, paragraph 1; Fig. 2; § 2.3.3, paragraphs 1-5; § 2.3.5, paragraph 1),

wherein the integrated storage management server, based on the policy information,

returns a candidate of the access computers as the write destination to be written to the access

computer as the write source (§ 2.3.1, paragraph 1; Fig. 2; § 2.3.3, paragraphs 1-5; § 2.3.5,

paragraph 1), and

wherein the access computer as the write source selects an access computer to be used

when writing a file from the access computer as the write destination to be written which has

been returned as the candidate, and writes a file to the access computer thus selected as the write

destination (§ 2.3.1, paragraph 1; Fig. 2; § 2.3.3; § 2.3.5, paragraph 2).

As in claim 3, Walker discloses that the integrated storage management server retains

location information of a file,

wherein the access computer as a delete source which deletes a file in the auxiliary

storage managed by another access computer designates location information of a file and

inquires an access computer as a delete destination which has the deleted file of the integrated

storage management server,

wherein the integrated storage management server, based on the policy information and

the location information of a file, returns a candidate of the access computer as a delete

destination which has the deleted file to the access computer as the delete source,

wherein the access computer as the delete source selects an access computer to be used

when deleting a file from the access computer as the delete destination which has been returned

as the candidate, and deletes a file to the access computer thus selected as the delete destination

(§2.3.1, paragraph 1, item c; § 2.3.7, paragraph 5).

Method claims 9 and 11 are rejected using the same rationale as for the rejection of

claims 1 and 3, respectively as above.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

7.   Claims 2, 6, 10, 14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Walker (Bruce Walker et al, "The LOCUS Distributed Operating System", 1983) as applied

to claims 1, 3, 9 and 11 above, and further in view of Fanning (US 6,366,907).

Walker is relied upon for the teachings relative to claims 1, 3, 9 and 11 as above.

As in claim 2, Walker further teaches that the access computer as the write destination which has been written by the access computer as the write source reports the fact that a write procedure has been initiated to the integrated storage management server (§ 2.3.6, paragraph 5).

As to claim 17, the rationale derived from Walker in the rejection of claim 3 is herein incorporated for the teaching of deleting files by an access computer as a delete source to an access computer as a delete destination.

Walker does not teach that the access computer as the write source reports information on the selected access computer as the write destination to be written to the integrated storage management server as further required by claim 2.

Walker also does not teach that in response to an inquiry from the access computer as the write source, the integrated storage management server may return a proxy access computer as a candidate for a write destination, and that the access computer as a write source may write a file to the access computer to be written via the proxy access computer as required by claim 6.

It is noted that Walker teaches a resource sharing mechanism that is known in the art as a hybrid peer-to-peer network architecture. Such an architecture is first distinguished as a peer-to-peer network in that participants in the network share their resources directly, acting as both resource providers and resource requestors. Secondly, a hybrid peer-to-peer network architecture is further distinguished in that a central entity is necessary to provide part of the

services in the network. This architecture is evident in Walker, where a current synchronization site (CSS) selects a candidate storage site (SS) from a plurality of candidates in response to a file open request from a user site (US) (§ 2.3.1, paragraphs 1 and 2; §2.3.3, paragraph 5), and where the storage site and user site communicate directly to exchange data (§ 2.3.5, paragraph 2).

Fanning teaches a network that also conforms to the definition of a hybrid peer-to-peer architecture (Abstract), where a resource requestor reports information on a selected resource provider to the central entity in order to aid in the selection of an optimum candidate to service a future request (Column 4, lines 25-41).

Therefore regarding claim 2, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have the access computer as the write source (i.e. resource requestor) report information on the selected access computer as the write destination to be written (i.e. resource provider) to the integrated storage management server (i.e. central entity) in the system of Walker, as would have been suggested in view of the teachings of Fanning as detailed above, due to the similar nature of the problems in both Walker and Fanning, namely to provide a mechanism for pairing requestors and providers in a hybrid peer-to-peer network architecture, and further to aid in the selection of an optimum provider candidate to service future requests as taught by Fanning.

Fanning further teaches that if the requester and provider are behind firewalls the requestor and provider are instructed to connect via a proxy server (Column 5, line 57 to column

6, line 7), where it is readily apparent that the real-time search engine (i.e. integrated storage management server) returns identification of the proxy access computer to the requestor.

Therefore regarding claim 6, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to cause the integrated storage management server to return a proxy access computer as a candidate for a write destination in response to an inquiry from the access computer as the write source, and have the access computer as a write source write a file to the access computer to be written via the proxy access computer, in the system of Walker, as would have been suggested in view of the teachings of Fanning as detailed above, due to the similar nature of the problems in both Walker and Fanning, namely to provide a mechanism for the management of resource sharing in a hybrid peer-to-peer network architecture, and further to allow requests to be served when the requestor and provider computers are behind a firewall as taught by Fanning.

Method claim 10 is rejected using the same rationale as for the rejection of claim 2 above.

Method claim 14 is rejected using the same rationale as for the rejection of claim 6 above.

Claim 17 is rejected using the same rationale as for the rejection of claim 2 above.

Method claim 19 is rejected using the same rationale as for the rejection of claim 17 above.

Claim 18 is rejected using the same rationale as for the rejection of claim 2 above.

Method claim 20 is rejected using the same rationale as for the rejection of claim 18 above.

8.   Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker (Bruce Walker et al, "The LOCUS Distributed Operating System", 1983) as applied to claims 1 and 9 above, and further in view of Needham (US Pub 2002/0188735).

Walker is relied upon for the teachings relative to claims 1 and 9 as above.

Walker further teaches an access computer as a delete source, based on location information of a file, selects and access computer to be used when deleting a file from the access computer as a delete destination which has been returned as a candidate, and deletes a file to the access computer thus selected as the delete destination in case that the access computer as the delete source deletes a file in the auxiliary storage managed by another access computer (§2.3.1, paragraph 1, item c; § 2.3.7, paragraph 5), where it is readily apparent in Walker that an access computer as a write source may be one in the same as the access computer as a delete source, in other words that an access computer that writes a file may also delete the file.

Walker does not teach that the access computer as a write source retains location

information of a file as required by claim 4.

Needham teaches a peer-to-peer network architecture where the peer computers (i.e.

access computers) retain an index describing files located on other peer computers connected to

the network (Fig. 1; page 2, paragraphs 14-15). Needham teaches that storing index information

locally allows locating a file without consuming network bandwidth (Page 1, paragraph 12).

Regarding claim 4, it would have been obvious to one of ordinary skill in the art at the

time of invention by applicant to have a peer computer retain an index that describes files located

on other peer computers as described by Needham, in the system of Walker, in order to locate a

file without consuming network bandwidth as taught by Needham.

Method claim 12 is rejected using the same rationale as for the rejection of claim 4

above.

9.   Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker

(Bruce Walker et al, "The LOCUS Distributed Operating System", 1983) as applied to claims 1

and 9 above, and further in view of IBM (Logical Data Interface, IBM Technical Disclosure

Bulletin, Sept. 1973, pp 1203-1207) and Intel (P2P File-Sharing at work in the Enterprise, March

2001).

Walker is relied upon for the teachings relative to claim 1 as above.

As in claim 5, Walker teaches that the policy information managed by the storage

integrated storage management server comprises type and accessibility state information for

respective access computers (§ 2.3.1, paragraph 2; § 2.3.3, paragraphs 2 and 3), where it is

readily apparent that in order to select the candidate as taught by Walker, the type of computer

must be known, for example whether the computer is a using site or a storage site relative to the

resource requested.

Walker does not teach that the policy information also includes available space of the

storage and selection priority as required by claim 5.

IBM teaches a storage controller that maintains tables that reflect the utilization of

storage volumes that it manages (Paragraph 1, lines 1-3), where it is understood that utilization

information defines both used and available space.

Intel teaches a hybrid peer-to-peer storage system that establishes a priority among access

destinations via the directory server (i.e. integrated storage management server) in order to select

the closest client (i.e. access computer) (Page 1, sidebar, paragraph 2; Fig. 2, step 2), where it is

readily apparent that policy information defining priority for selecting a computer must be

present in the directory server.

Regarding claim 5, it would have been obvious to one of ordinary skill in the art at the

time of invention by applicant to include information comprising available storage space as

taught by IBM, and information defining priority for selecting a computer as taught by Intel, as

part of the policy information in the system of Walker, in order to properly allocate storage in the

system and to provide for the fastest transmission of data.

Method claim 13 rejected using the same rationale as for the rejection of claim 5 above.

10.   Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker

(Bruce Walker et al, "The LOCUS Distributed Operating System", 1983) as applied to claims 1

and 9 above, and further in view of Yang (Beverly Yang et al, Comparing Hybrid Peer-to-Peer

Systems, 2001).

Walker is relied upon for the teachings relative to claims 1 and 9 as above.

The rationale derived from Walker in the rejection of claim 3 is herein incorporated for

the teaching of deleting files by an access computer as a delete source to an access computer as a

delete destination.

Walker does not teach a plurality of storage management integrated servers wherein if an

inquiry by an access source to a first storage management integrated server cannot be satisfied,

the inquiry is transferred to a second storage management integrated, wherein the second storage

management integrated server returns a candidate for the access computer to be accessed if it is

able to satisfy the inquiry, as required by claim 7.

Yang teaches a peer-to-peer computing system comprising a plurality of storage

management integrated servers (Fig. 1, elements labeled "Local Server" and "Remote Server";

section 3, "General Concepts", lines 6-14) which may be configured in a chained architecture

such that inquiries that cannot be satisfied by a first server (i.e. local server) are transferred to a

second server (i.e. remote server), and if the remote server is able to satisfy the query it responds

with results of the query (Section 3, "Chained Architecture", lines 1-14). Yang further teaches

that with this architecture downloads are fast and scaleable (Section 3, "Chained Architecture",

lines 15-17).

Regarding claim 7, it would have been obvious to one of ordinary skill in the art at the

time of invention by applicant to use a plurality of storage management integrated servers

configured in a chained architecture as taught by Yang, in the system of Walker, in order to yield

fast and scaleable downloads as taught by Yang.

Method claim 15 is rejected using the same rationale as for the rejection of claim 7

above.

11.   Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker

(Bruce Walker et al, "The LOCUS Distributed Operating System", 1983) as applied to claims 3

and 9 above, and further in view of Rabinovich (Michael Rabinovich et al, Not all hits are

created equal: Cooperative proxy caching over a wide-area network, 1998).

        Walker is relied upon for the teachings relative to claims 3 and 9 as above.

        Walker does not teach location information of a file that includes information about an

integrated storage management server to which an inquiry will be transferred, as required by

claim 8.

        Rabinovich teaches a web caching system where proxy caches cooperate as peers (Page

2, section 2, paragraph 2), and where a first proxy cache maintains an index of web pages in a

directory that may specify a second proxy cache to which a request for the web page is

forwarded if the first proxy cache cannot satisfy the request (Page 8, section 4.4, paragraph 1).

Rabinovich teaches that this enables proxy caches to share objects only with other proxy caches

in its vicinity, thereby reducing the overhead of object location (Page 10, section 7, paragraph 2).

It is noted that a proxy cache responds to requests for objects (e.g. files) and seeks to locate them

in a local storage. In this manner, the proxy cache fulfills a similar role as the integrated storage

management server of the claim.

Regarding claim 8, it would have been obvious to one of ordinary skill in the art at the

time of invention by applicant to include location information of a file that comprises

information about a proxy cache (i.e. integrated storage management server) to which an inquiry

will be transferred as taught by Rabinovich, in the system of Walker, in order to reduce the

overhead of object location as taught by Rabinovich.

Method claim 16 is rejected using the same rationale as for the rejection of claim 8

above.

Response to Arguments

12.   Applicant's arguments filed 24 May 2004 with respect to the rejection of claims 1-16

have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M Ross whose telephone number is (703) 305-0706. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMR

Mano Padmanabhan
Supervisory Patent Examiner
TC2100

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER